Appendix I

USFS Visual Impacts Reports

APPENDIX I
CONTENTS

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File Code: 2380 **Date:** April 30, 2004

Route To: File

Subject: Proposed TEP Powerline - Project Analysis Using Visual Quality Objectives

To: Teresa Ann Ciapusci

Purpose of this Report

The *Tucson Electric Power Company Sahuarita-Nogales Transmission Line Draft Environmental Impact Statement* (July 2003) includes an analysis of visual resources using the Forest Service's Scenery Management System (SMS). This report supplements the DEIS by providing a brief analysis of the project using the Visual Quality Objectives (VQOs) in the *Coronado National Forest Plan*.

Background

In recent years, there has been conflicting direction regarding the assessment of scenic resources on the Coronado National Forest. The *Coronado National Forest Plan* refers to VQO maps created under the 1974 Visual Management System, yet since the mid 1990s National Forests have been directed to use the improved Scenery Management System (Reynolds, 2380, August 22, 1994; McDougle, 2380, March 10, 1997; and Furnish, 1920/2380, June 11, 2001). In 2001, SMS mapping of Scenic Classes, which show the relative importance of scenic resources Forest-wide, was completed for the Coronado National Forest. The proposed TEP power line provided an opportunity to implement Scenery Management at the project level, as intended and directed, and therefore was utilized for this analysis.

Although on-the-ground maps for the two systems are quite different, the components of both systems are similar and analysis (affected environment, environmental consequences, mitigation, etc.) for the TEP proposal yields largely the same results. A Forest Plan amendment would be required to achieve forest plan consistency under either system.

Introduction

This report provides information about the proposed project using the VQOs in the Forest Plan. It is not meant to be a complete parallel for the visual resource sections in the *DEIS*. Much of the information contained in the DEIS is the same under either system. The landscape character and existing condition descriptions in Chapter 3 are appropriate for both systems, as are the descriptions of short and long-term impacts to visual resources, the simulations, and the mitigation measures described in Chapter 4. Additionally, the Cumulative Impacts and Unavoidable and Adverse Environmental Impacts sections (Chapters 5 and 6) are basically the same under either system.

Affected Environment

The proposed power line routes pass through Management Areas 1, 3, 4, and 7. Standards and guidelines for Management Areas 1, 3, and 7 require that "Visual quality objectives will be met" (see *Management Emphasis and Intensity*, and *Management Practice Activity Visual Resource Management A03*, on pages 47, 55, 67, and 71). Standards and guidelines for Management Area 4 require that "Visual quality objectives will be met or exceeded" (see *Management Emphasis and Intensity*, and *Management Practice Activity Visual Resource Management A03*, on page 62).

Visual Quality Objectives are based on two components:

1. Variety Class: A measure of the visual variety or diversity of landscape character. The three variety classes are A (Distinctive), B (Common), and C (Minimal).

2. Sensitivity Levels and Distance Zones: Sensitivity Levels are a measure of the viewer interest in scenic qualities of a landscape. The three levels are 1 (Highest), 2 (Average), and 3 (Lowest). Distance Zones include Foreground (up to 1/2 mile), Middleground (1/2 mile to 5 miles), and Background (over 5 miles).

The entire project area is rated Variety Class A and B.

There are no maps of Sensitivity Levels for the forest. However, a review of the VQO maps indicates that Ruby Road, Pena Blanca Lake, I-19, Arivaca Road, Arivaca Lake, and one area on the western edge of Nogales, AZ, were identified as Sensitivity Level 1 areas. A project-level review of these Sensitivity Levels confirms that, with the exception of the area near Nogales, AZ (where no visually sensitive public use area exists), all are appropriate. It is not clear whether any Sensitivity Level 2 travelway or areas were identified in the VQO mapping. A project-level review reveals that a number of travelways would qualify: FR 684, FR 4145, Peck Canyon Rd., FR 4191 and 4192, FR 223, FR 221, FR 4203, FR 222, FR 39A, the trail to Atascosa Lookout, the road from Ruby Rd. to Corral Nuevo, the road from Ruby Rd. to Trail #40, and Trail #40. All other roads and trails are considered Sensitivity Level 3.

Existing visual quality objectives for the proposed power line routes are Retention, Partial Retention, and Modification. The Western Corridor route would be approximately 0.4 mile from the Pajarita Wilderness, which has a VQO of Preservation.

Definitions for these VQOs are:

Preservation:	Management activities, except for very low visual impact recreation facilities, are prohibited.
Retention:	Management activities should not be evident to the casual forest visitor.
Partial Retention:	Management activities must be visually subordinate to the characteristic landscape.
Modification:	Management activities may dominate the characteristic landscape, but must, at the same time, utilize naturally established form, line, color, and texture.

Table 1: Proposed Power Line Routes and Visual Quality Objectives by Miles

VQO	Western Corridor	Central Corridor	Crossover Corridor
Retention	10.12	1.10	1.10
Partial Retention	16.68	4.28	14.97
Modification	2.62	9.68	13.06
Total-Miles	29.42	15.06	29.13

The attached map shows existing VQOs and the 3 proposed routes.

Environmental Consequences

None of the three proposed routes would meet current VQOs. The power line would be evident to casual forest visitors, and in foreground locations it would dominate the landscape.

The Western and Crossover Corridors have greater impacts on visual resources than the Central Corridor, due to their longer routes across the Forest and the fact that both impact large areas where the existing visual resources are in excellent condition. The Western Corridor has the greatest impact on visual resources due to its substantial visibility from Ruby Road. The Western Corridor also would be visible from the Pajarita Wilderness. Of the proposed routes, the Central Corridor has the least impacts on visual resources because it has the shortest length on National Forest System lands, impacts Ruby Road only at one crossing, and impacts landscapes where the existing visual condition has already been compromised by the existing natural gas pipeline and nearby off-forest activities such as private development and I-19.

If construction of a power line is approved, a Forest Plan amendment changing the Visual Quality Objectives for portions of the corridors would be required for Forest Plan consistency. See the attached maps showing proposed VQOs for each route.

The rationale for proposed VQOs is as follows:
1. The corridor width where VQOs would be changed would be 1/4 mile wide (i.e., 1/8 mile on each side of the power line). Although the visual impact of the line is wider, lowering VQOs for a relatively narrow corridor will best protect remaining visual resources.

2. In areas where the power line would be viewed in the foreground from Sensitivity Level 1 and 2 travelways, the VQO would be changed to Maximum Modification. Maximum Modification allows management activities that dominate the characteristic landscape, but activities should appear as natural occurrences when viewed as background. Foreground was mapped at 1/2 mile.

3. In areas where the power line would be viewed in middleground or background, and where the power line is not visible from visually sensitive travelways, existing VQOs of Partial Retention and Modification would likely be met; therefore VQOs for these areas would not be changed, provided that no new permanent access roads would be required.

4. In the area of VQO Retention on the western edge of Nogales, AZ, the proposed VQO for the power line corridor would be changed to Partial Retention. This area is not viewed in the foreground from any Sensitivity Level 1 or 2 travelways, but there may be views of this area from lesser-used public roads and/or from residential areas off-Forest; therefore the power line would not meet the existing VQO of Retention, but would likely meet Partial Retention.

Table 2: Proposed Power Line Routes and Visual Quality Objectives by Acres

Changes in Acres of VQOs	**Western Corridor**		**Central Corridor**		**Crossover Corridor**	
VQO	Existing	Proposed	Existing	Proposed	Existing	Proposed
R	1,629	60	175	0	184	9
PR	2,624	2,055	680	645	2,422	2,103
M	448	342	1,560	649	2,060	1,049
MM	0	2,245	0	1,121	0	1,506
Total	**4,702**	**4,702**	**2,415**	**2,415**	**4,667**	**4,667**

Mitigation

Mitigating measures will not cause the project to meet VQOs, but will lessen the overall visual impact of facilities. Recommendations include:

1. Use self-weathering monopoles and non-specular wire.

2. If any lattice structures must be used on National Forest System lands, avoid placing them where they will be seen in the foreground from any Concern Level 1 or 2 travelway.

3. Minimize clearing vegetation. Protect trees, shrubs, and groundcover wherever possible.

4. Naturalize all areas disturbed by this project. This includes all areas damaged by construction activities and obliteration of all new roads resulting from this project (not just the initial visible portions). Naturalization shall include restoration of natural grades, placing boulders and rocks to control vehicular access, tilling soil, and revegetating with native plant species and patterns from the surrounding landscape (seed and/or plants). Boulders shall be set into the ground 1/3-1/2 of their size to look natural, not simply placed on grade. If the public continues to use disturbed areas after naturalization, additional work may be required by the Forest Service.

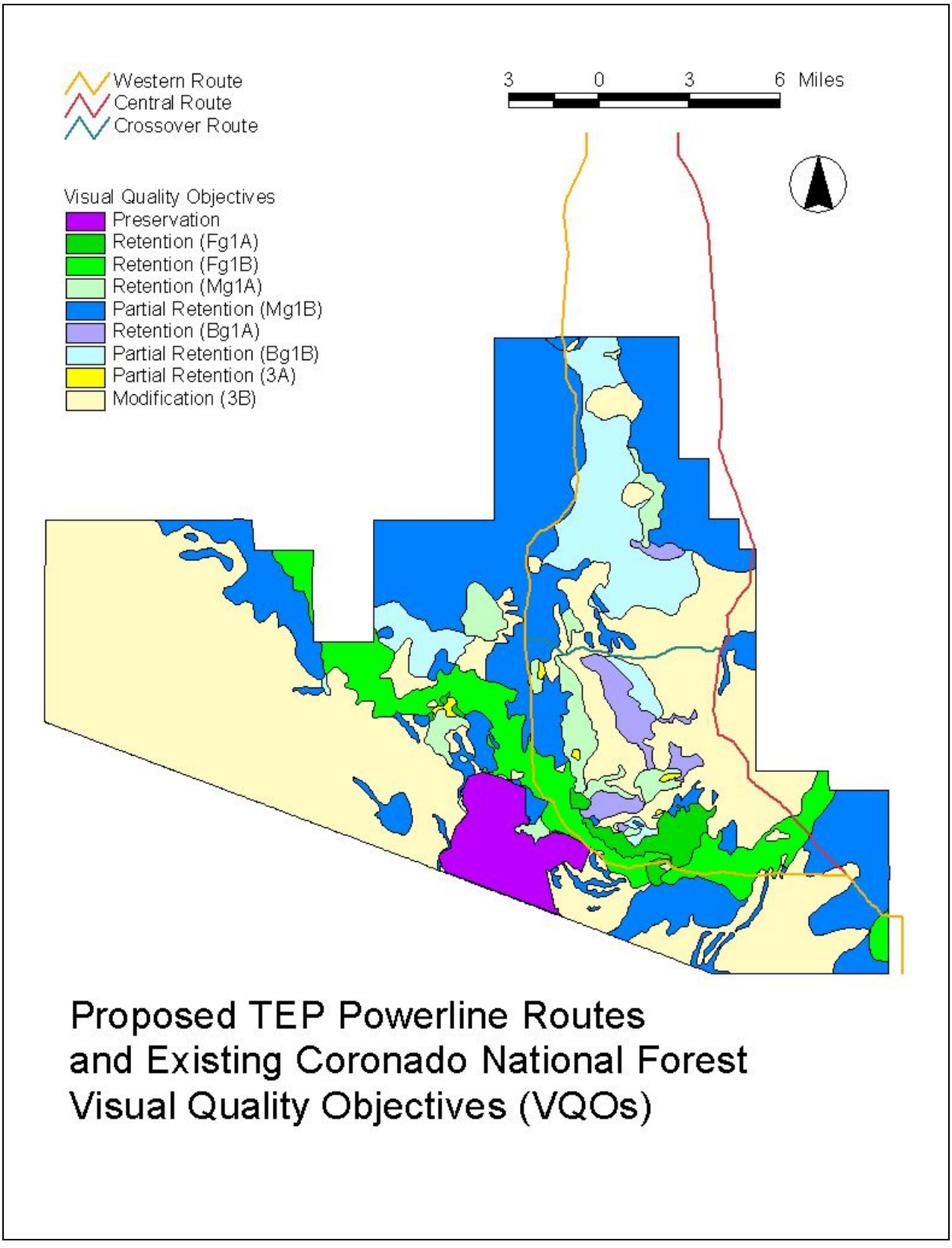
5. Minimize permanent access roads, and design them with great care, following the contours of the land to minimize clearings, and reduce cut and fill slopes. Construct cut and fill slopes at 3:1 or flatter to allow for revegetation even if this initially results in greater disturbed areas. Any gates or fences required for restricting public access to permanent access roads shall be selected to blend with landscape colors; avoid shiny materials and keep signs small.

6. At the end of the proposed project operation time, or when facilities are no longer being used, remove all facilities from National Forest land, restore natural topography, and revegetate all clearings and disturbed areas at no expense to the Government.

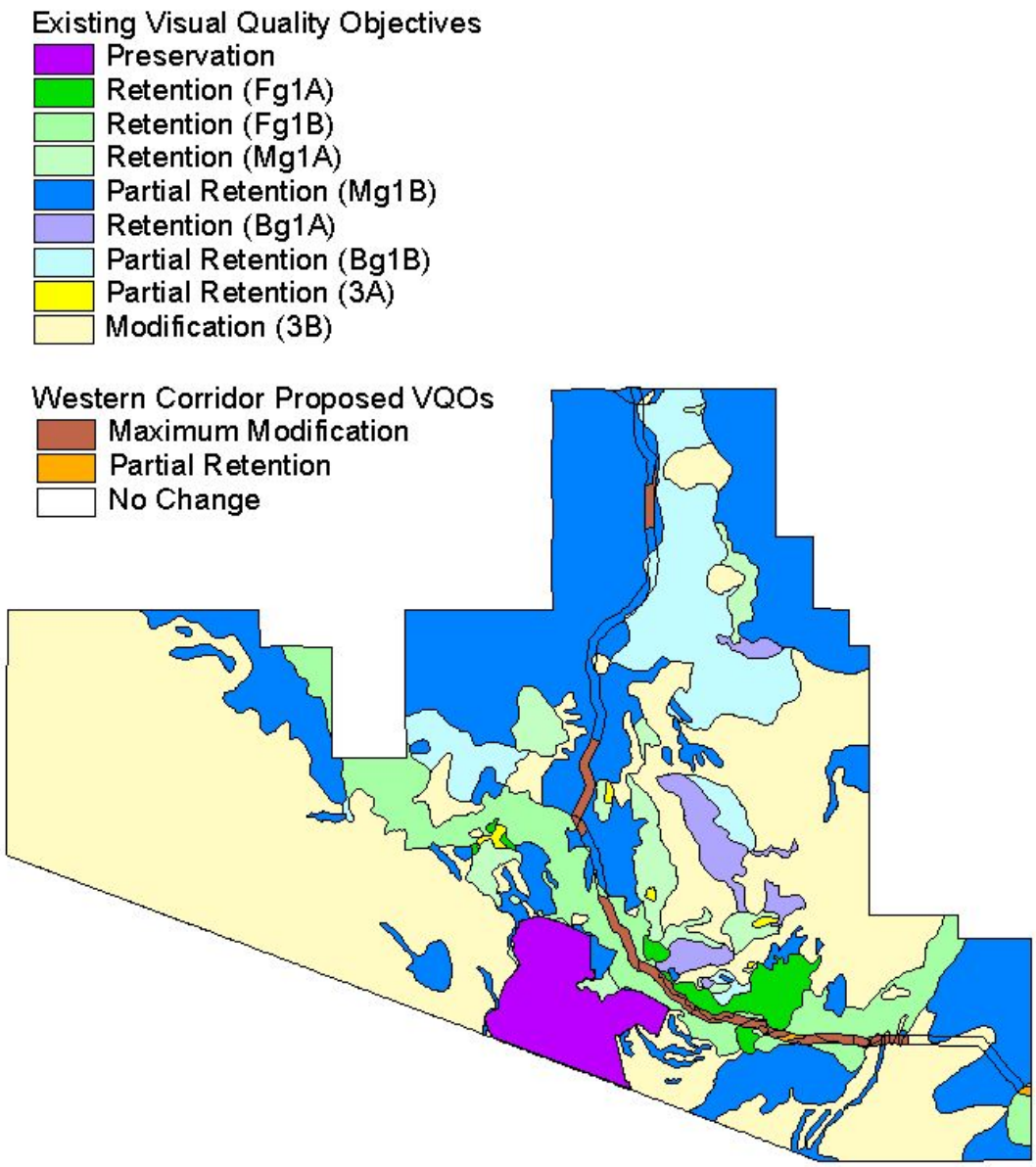
/s/ Debby Kriegel

DEBBY KRIEGEL
Forest Landscape Architect

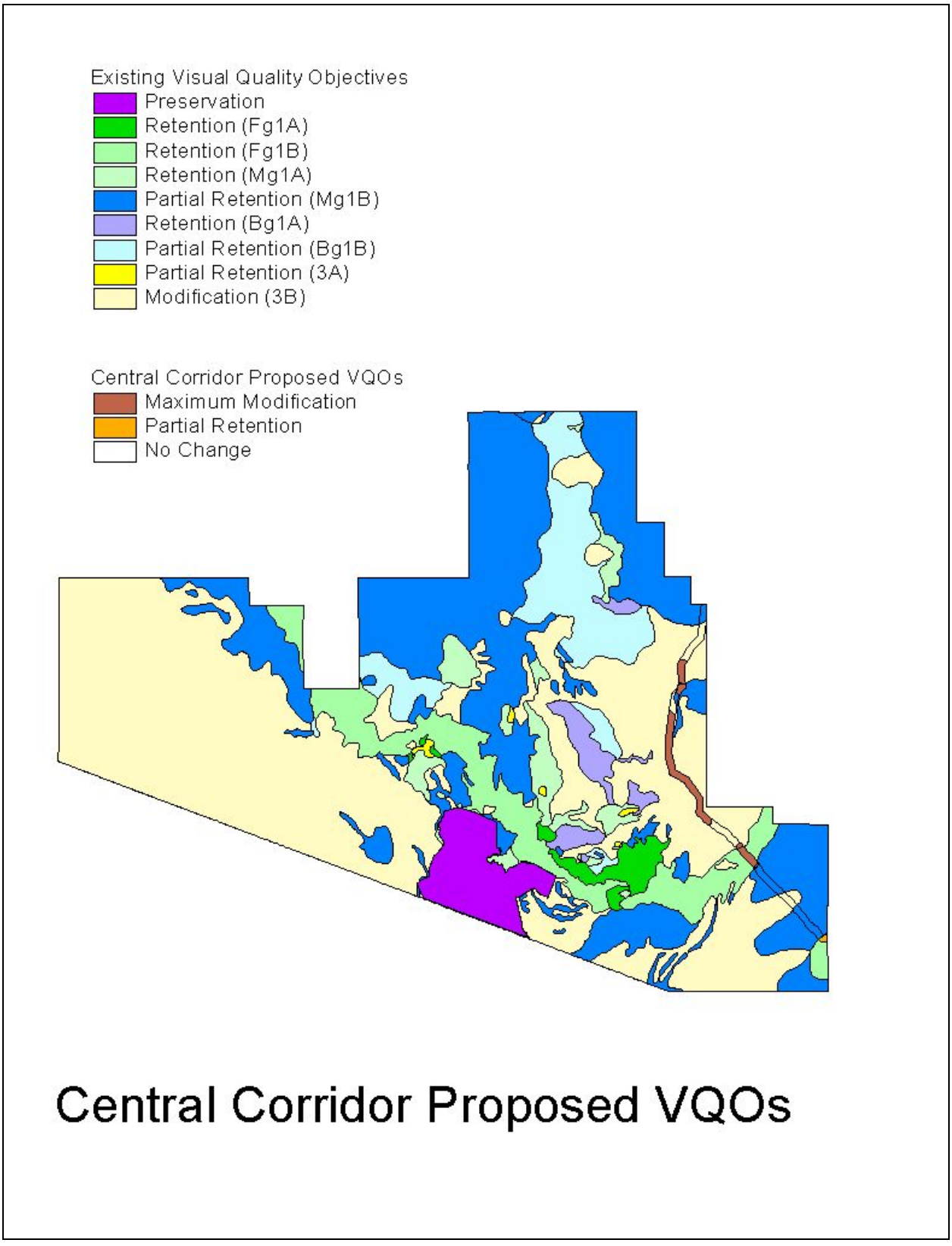
4 Attachments:
Existing VQOs and the 3 proposed power line routes.
Proposed VQOs for Western, Central, and Crossover Corridors.

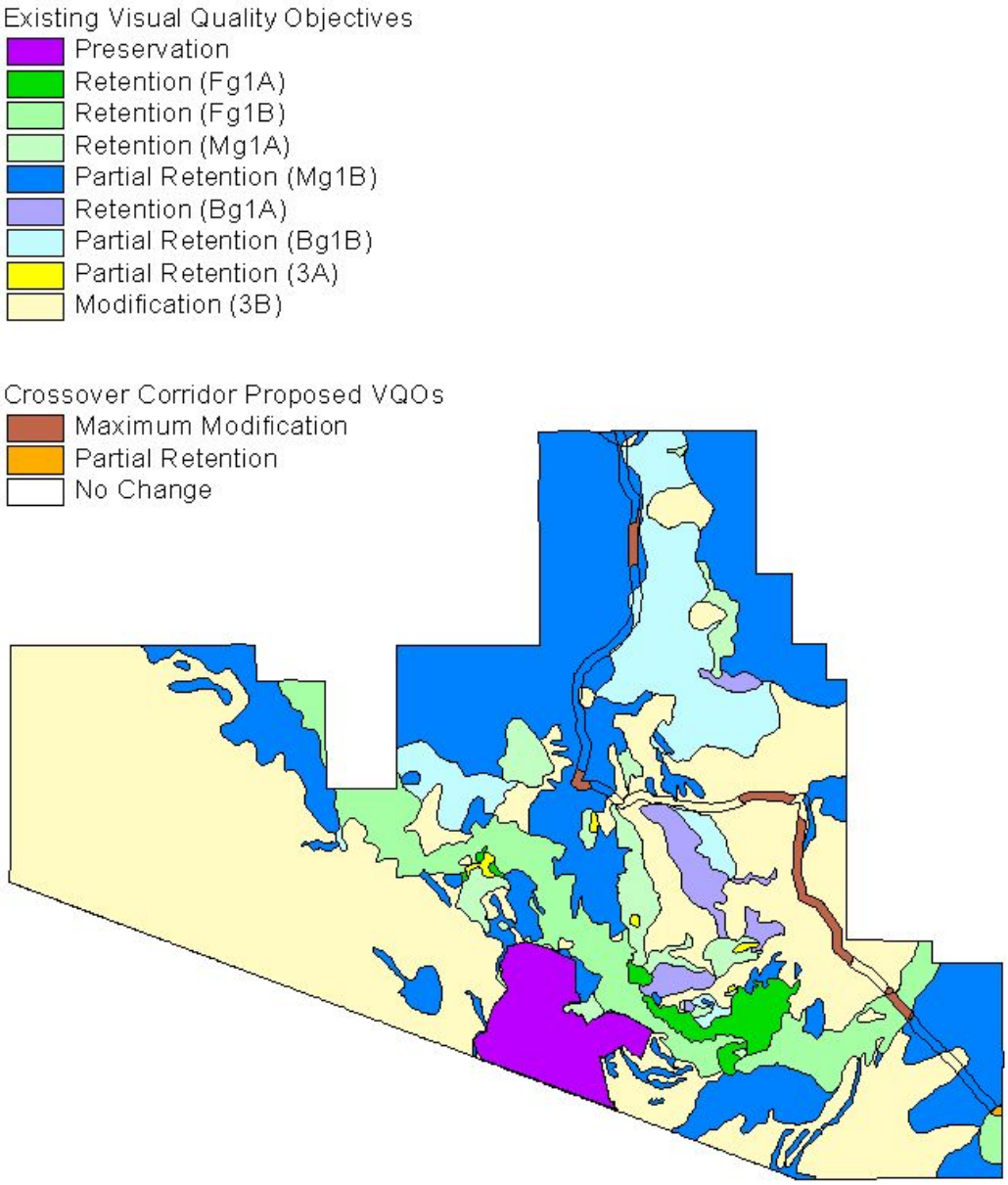


Proposed TEP Powerline Routes and Existing Coronado National Forest Visual Quality Objectives (VQOs)



Western Corridor Proposed VQOs


Existing Visual Quality Objectives
Preservation
Retention (Fg1A)
Retention (Fg1B)
Retention (Mg1A)
Partial Retention (Mg1B)
Retention (Bg1A)
Partial Retention (Bg1B)
Partial Retention (3A)
Modification (3B)
Central Corridor Proposed VQOs
Maximum Modification
Partial Retention
No Change
Central Corridor Proposed VQOs



Crossover Corridor Proposed VQOs

United States Department of Agriculture | **Forest Service** | **Coronado National Forest** | **300 W. Congress St. Tucson, AZ 85701 (520) 670-4552 TDD (520) 670-4584 FAX (520) 670-4567**

File Code: 2380 **Date:** August 10, 2004

Route To: File

Subject: Proposed TEP Powerline - Visibility from Tumacacori & Tubac Historic Sites

To: George Asmus
Teresa Ciapusci

Introduction

Due to concerns about the possible visibility of the Central Corridor from historic sites in Tumacacori and Tubac, this morning I completed a field review of these sites.

Tumacacori National Monument is managed by the National Park Service. Tubac Presidio State Historic Park is managed by Arizona State Parks. Both areas contain parking areas, buildings, and outdoor walkways and facilities.

I visited each site, took photographs, and spoke with staff about views from the sites. Additionally, I drove along the I-19 frontage road from the Tumacacori-Carmen interchange south of Tumacacori, north past the Tubac interchange and Tubac, to the Chavez Siding intertchange (approx. 6 miles total). This gave me a better overall impression of viewsheds along this route that is used by visitors to the historic sites.

It should be noted that the Central Corridor nearest these sites is *not* located on National Forest land, but rather lies between I-19 and the National Forest boundary. The route enters National Forest land approximately 2 miles south of Tumacacori. However, due to the fact that it is difficult to determine exactly where National Forest land begins, the following analysis is based on any potential views (on or off the Coronado National Forest) of the proposed powerline from these locations.

Tumacacori National Monument

Views from the Monument toward the Central Corridor from this area are mostly blocked by trees, buildings west of the frontage roads, I-19 (which is elevated through this area), and hills just west of I-19. There are limited views of the distant mountains. The most open views toward the Central Corridor are from the south end of the parking area and from the outdoor "fiesta grounds" at the north end of the site. However, it is very unlikely that the proposed powerline would be visible from these areas. Views from other locations within the monument are largely blocked by the monument's buildings and walls.

Tubac Presidio State Historic Park

Views toward the Central Corridor from this area are blocked by vegetation, other buildings, and topography. Views toward the Central Corridor are most open from the parking lot and entrance. There is one narrow, distant view from within the site where it is possible that the powerline would be visible,

but this area already includes a house and a powerline. Most views from within the site are blocked by structures, and most viewsheds from the area include a variety of development, including buildings, roads, fences, and other powerlines.

Frontage Road

Most views from the Carmen interchange north to the Tubac interchange are blocked by topography. There are some small areas north of Tumacacori where topography does not block views and travelers might get a glimpse of the powerline looking west out their side windows. These occur at approximately 0.4, 0.8, and 2.4-2.7 miles north of the Tumacacori historic site.

North of the Tubac interchange views are much more open; topography and vegetation do little to block views toward the Central Corridor. In these areas the powerline might be visible. However, these viewsheds are far from pristine; homes, roads, and other powerlines are clearly visible.

Summary

Although the Central Corridor is very visible from many other locations, it is unlikely that the line would be visible from the Tumacacori and Tubac historic sites.

/s/ Debby Kriegel

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Forest Landscape Architect

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File Code: 2380 **Date:** April 28, 2004

Route To: File

Subject: Proposed TEP Power Line - Cumulative Effects on Visual Resources

To: Teresa Ann Ciapusci

This report provides an analysis of cumulative effects of the proposed TEP powerline, when added to past, present, and reasonably foreseeable future actions, on visual resources. The analysis uses the 1974 Visual Resource Management System (rather than the updated Scenery Management System) to tie with direction included in the *Coronado National Forest Plan*.

Introduction

> *People need natural-appearing landscapes to serve as psychological and physiological "safety valves,"...Once plentiful natural-appearing landscapes are becoming more scarce.*
>
> Landscape Aesthetics, A Handbook for Scenery Management, USDA Forest Service, 1995

Before proceeding further, three general concepts should be noted:

1. Most impacts to visual resources are cumulative

Scenery is different than many resources. When vegetation is removed, for example, it grows back in a given number of years; additional vegetation removal after that point would have no cumulative effects. Projects that result in permanent changes to landscape character (including utility lines) tend to be progressive, never returning to the original character unless the facilities are removed. As projects are added to landscapes, there tends to be a gradual decline in visual quality. And generally there is no precise point at which one additional project is "too much."

2. Visual resource boundaries are difficult to define

Unlike soils in a specific watershed, visual resource boundaries are not clearly defined. As people travel through a landscape they experience a sequence of viewsheds. Looking at cumulative effects for just one project area or viewshed only tells part of the story. However, the bigger picture is generally beyond the scope of any given project. For the TEP power line, there are at least two scales to consider: the Tumacacori & Atascosa Mountains Ecosystem Management Area and the entire Coronado National Forest. See the section "Analysis Area Scales" below.

3. Seemingly small projects can have large effects on visual quality and small project impacts add up to big ones

The impacts of a single project at the Forest scale are often relatively insignificant, but cumulative effects of many small projects over the decades and across the landscape can become an enormous issue as visual quality diminishes.

Additionally, projects with relatively small footprints can impact vast viewsheds. For example, the proposed TEP power line lies within a narrow corridor, yet would impact numerous viewsheds. And at a broader scale, cumulative effects are substantial. On the Coronado National Forest, like National Forest lands nation-wide, there is a slow, creeping loss of natural landscapes and scenic integrity, though individual projects may have relatively little impact. The cumulative effects of the TEP power line on visual resources may seem relatively small; just one new utility line running through thousands of acres of natural-appearing landscapes. But both individual and cumulative impacts of relatively small projects on visual quality can be significant. If acreage was the only criteria, then scattering skyscrapers across the Forest would technically be a tiny impact to scenery, but obviously this would dramatically change the landscape across millions of acres. The Mt. Graham International Observatory provides an example; it occupies a mere 8.6 acres, but impacts visual quality for an enormous viewshed, extending 50 or more miles away.

Forest Plan Direction

The *Coronado National Forest Plan* provides limited guidance for evaluation of cumulative effects on visual resources. Two relevant items include:

1. Recommendation (page 28): "Inventory the Existing Visual Condition (EVC)". This would establish a benchmark to evaluate changes through time.

2. Monitoring Visual Quality (page 93): "If visual quality objective acres in Retention or Partial Retention is reduced 20%, the ID Team will evaluate and make recommendations to management." This would set a threshold for cumulative impacts.

The EVC mapping was not completed, but an Existing Scenic Integrity inventory (the equivalent Scenery Management System mapping) is currently underway and should be available by Fall 2004. Therefore, determination of whether or not 20% of R or PR areas has been impacted is not available. The remainder of this report will be based on a qualitative, rather than quantitative, analysis. This is quite normal for a resource like visual quality.

Analysis Area Scales

As previously mentioned, boundaries for visual resources are hard to define. For the proposed TEP power line, analysis at two scales is appropriate:

<u>The Tumacacori Ecosystem Management Area (EMA)</u>

The landscapes of an entire EMA, in this case one that includes two mountain ranges, is a logical scale to examine. Due to the basin and range geology of southeastern Arizona, sky island mountains rise above the desert and serve as focal points for travelers, often visible from many miles away and from numerous travelways inside and off National Forest System lands. Cumulative effects analysis for this EMA will also include impacts on private lands adjacent to the Forest boundary.

Landscapes across the Coronado National Forest

Many of the public comments for the TEP power line relate to visual beauty of the region and the Coronado National Forest in general (*Tucson Electric Power Company Sahuarita-Nogales Tramsmission Line Draft Environmental Impact Statement*, page 1-11, 1.3.1 Issues Within Scope of the EIS), so a brief analysis of cumulative effects for this scale is included.

This broader view analysis could be expanded to include all large blocks of natural landscapes across southeastern Arizona (i.e., the sky island landscapes). This might also include National Park Service and BLM lands, other Federal conservation lands, and even areas protected by State and local jurisdictions. A brief analysis of these lands follows:

- National Park Service lands include Saguaro National Park, Chiricahua National Monument, and Coronado National Monument. These lands provide natural, public landscapes, and their visual resources are generally better protected than those on the Coronado. However, Saguaro West is relatively small and nearly surrounded by private development, and Chiricahua and Coronado National Monuments are relatively small, so at best these provide only limited protection of natural landscapes.
- Bureau of Land Management lands constitute extensive acres in southeastern Arizona, but are mainly low elevation and generally less unique landscapes, and much BLM land is scattered in small pieces.
- Other Federal conservation areas include the San Pedro Riparian National Conservation area, which is a relatively narrow strip of protected land, Buenos Aires National Wildlife Refuge, which is undoubtedly being impacted by illegal immigrant activity from Mexico, and Military and Indian Reservation lands, which afford little protection for visual resources. Therefore, these lands provide limited long-term protection of natural landscapes available to for public enjoyment.
- State Trust lands, which are not protected, and local (City & County) lands which are scattered and small.

Hence, the analysis is focused back to the Coronado National Forest.

Past Actions

It is extremely rare that constructed facilities are removed from National Forest System lands, and many of these types of management actions result in long-term changes. Therefore cumulative effects to visual resources grow with each passing year and decade. Visual resources across the Forest have been subjected to extensive impacts as a result of past projects.

The Tumacacori Ecosystem Management Area

Compared to many parts of the Coronado National Forest, including the nearby Santa Rita Mountains, this EMA has had relatively few past actions that have negatively impacted visual resources. Existing roads and trails are used as viewing platforms and therefore are generally not considered negative elements, and recreation facilities (such as at Pena Blanca Lake and Calabasas Group Site) have not resulted in major impacts to visual resources. Mining activity, especially at Ruby Townsite (private land), and small mines along California Gulch and Warsaw Gulch, and at the end of Rock Corral Rd., impact visual quality. Most visitors to this EMA traveling on major roadways would not notice impacts from wildcat roads or OHV damage, though some of this has occurred. The existing underground gas pipeline creates a linear clearing across the landscape. Some of the most extensive impacts here are created by illegal aliens traveling north from Mexico, including direct impacts such as non-system trails and

discarded debris, and resulting actions from U.S. Border Patrol enforcement activities, such as cross country travel, road improvements, and security measures (e.g., RVS towers) along the International Boundary. Fortunately, little of this activity is visible from sensitive public travelways.

It should be noted that visual resources in this EMA that would be impacted by powerline construction, particularly by the Western and Crossover Corridors, are currently in such good condition that one Arizona Congressman has publicly stated an intent to propose legislation to establish an additional Wilderness Area within the Tumacacori EMA.

Landscapes across the Coronado National Forest

Landscapes across the Coronado are still generally natural-appearing, but places where visitors can experience pristine viewsheds are becoming increasingly rare. Although a comprehensive list is not available, impacts to visual quality include astrophysical facilities on mountaintops, utility structures such as communication towers and power lines, mining activities, catastrophic wildfires, administrative facilities, wildcat roads, OHV damaged areas, and developments on private lands within and adjacent to Forest boundaries (in fact, the increasing population of southern Arizona has not only resulted in development of lands up to the Coronado National Forest's boundaries, but actually led to the need for the proposed project).

Present and Ongoing Action

The Tumacacori Ecosystem Management Area

The effects of the proposed TEP powerline cannot be fully mitigated (e.g., by placing the line underground) and therefore would continue the decline in visual quality in this EMA. Additionally, this project is unlike many past, present, and future actions because of its extensive impacts. It sets a precedence for visual impacts by introducing an urban-type facility that is out of character with the valued Forest landscape in a part of the forest with very high visual integrity, and it creates a footprint that crosses across many miles of National Forest System land.

Another ongoing impact to natural landscapes in the area is the urban growth and development that continues to spread across the valleys and lower elevations as Tucson, Green Valley, and other communities continue to grow. Development of lands between I-19 and the Forest boundary will continue to impact visual quality. And impacts from Mexican nationals crossing into the U.S., and related Border Patrol activities, will only worsen, further degrading natural public landscapes.

Landscapes across the Coronado National Forest

The effects of the proposed TEP power line cannot be fully mitigated (e.g., by removing similar facilities elsewhere on the Coronado) and therefore would continue the decline in visual quality at a Forest-wide scale.

Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions described below are limited to those on the April 1, 2004 Coronado National Forest's Schedule of Proposed Actions (SOPA) list.

The Tumacacori Ecosystem Management Area

A possible future project with similar impacts to visual resources is a proposal from the Power Company of New Mexico (PNM) to construct a 345 KV power line. If constructed, this project would further reduce visual quality in the EMA.[1]

Landscapes across the Coronado National Forest

Proposed future projects that would negatively affect visual resources Forest-wide include:
1. Greaterville placer mining (Santa Rita Mountains)

2. Greaterville road relocation (Santa Rita Mountains)

3. Alpha Calcit mine (Dragoon Mountains)

4. Red Mountain power line (Canelo Hills)

Summary

> *Evidence is increasing that the most devastating environmental effects may result not from the direct effects of a particular action, but from the combination of individually minor effects of multiple actions over time.*
>
> Considering Cumulative Effects Under the National Environmental Policy Act, Council On Environmental Quality, 1997

The Forest Plan Visual Quality Objectives were established to assure that management actions would not cross the threshold of acceptability for visual resource impacts. Past projects have impacted visual quality, the proposed TEP power line will not meet Forest Plan VQOs, and there are known additional actions which will further reduce visual quality.

The *Coronado National Forest Plan* (p. 41, item 4) states: "Existing utility and transportation corridors will continue to be used for those types of uses. Every attempt should be made to locate new utilities within those existing corridors that meet the visual quality objective…". Although none of TEP's proposed corridors meet VQOs, the Central Corridor has less cumulative effect on visual resources partly because it follows an existing utility corridor (with the exception of the deviation around an inventoried roadless area). Cumulative effects from the Crossover Corridor, and especially the Western Corridor, are greater because these routes not only accelerate the cumulative loss of natural landscapes by impacting large and relatively pristine areas, but also because either would create an additional new utility corridor.

/s/ Debby Kriegel

DEBBY KRIEGEL
Forest Landscape Architect

[1] In October 2004, PNM indicated that it would be preparing a letter to the DOE withdrawing their Presidential Permit application (see Section 5.2.1 of the TEP Final EIS).